inland architect

the magazine of inland area building and planning PUBLISHED BY THE CHICAGO CHAPTER AMERICAN INSTITUTE OF ARCHITECTS

August, 1961 *35 cents*

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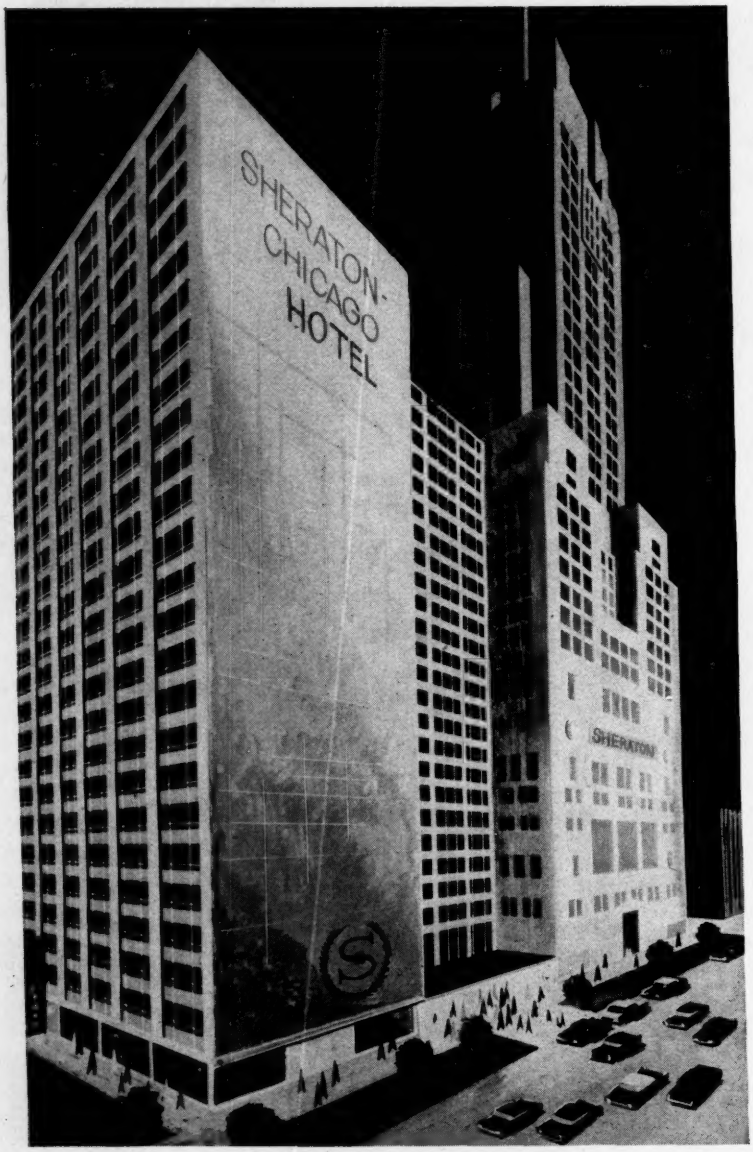

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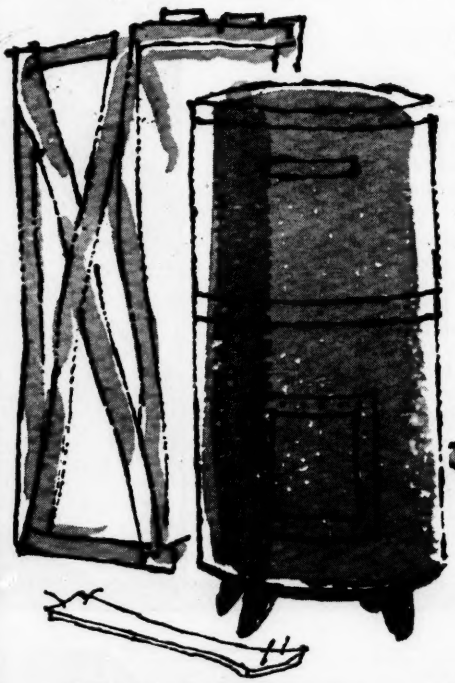

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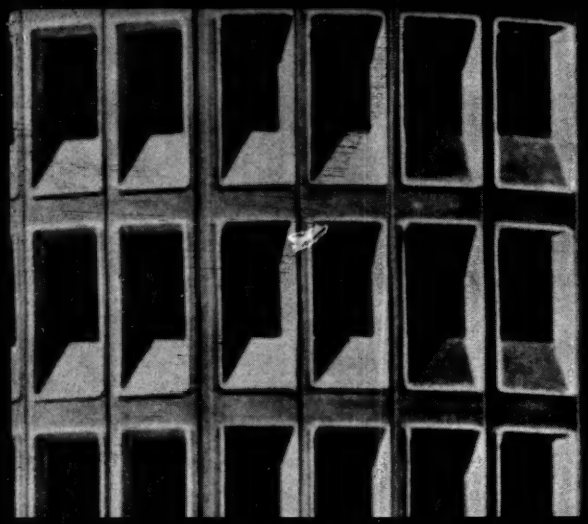

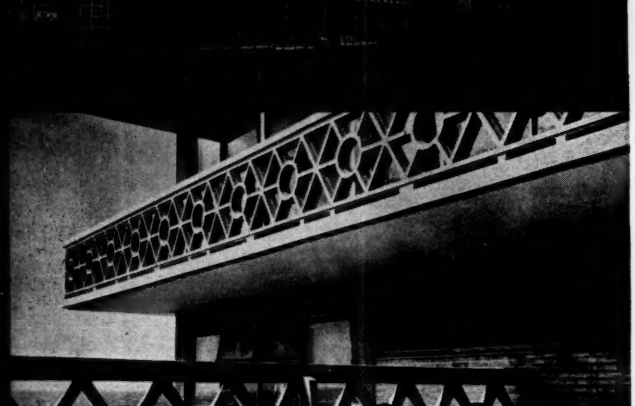

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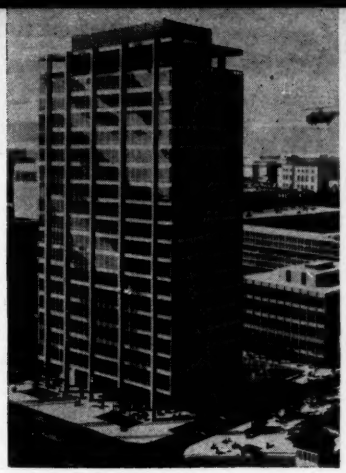

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PUBLISHED BY THE CHICAGO CHAPTER AMERICAN INSTITUTE OF ARCHITECTS

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INLAND ARCHITECT • CHICAGO CHAPTER • AMERICAN INSTITUTE OF ARCHITECTS
221 North LaSalle Street, Chicago 1, Illinois *DEarborn 2-7197*
Published monthly by the Chicago Chapter of the American Institute of Architects at 221 N. LaSalle Street, Chicago 1, Illinois. Second-class mail privileges authorized at Chicago, Illinois. Subscriptions: $2.00 per year for A.I.A. members and students not belonging or affiliated with Chicago Chapter A.I.A., $3.00 per year for non-members. Single copies, 35¢.

MEETINGS

Chicago Chapter To Meet On Tuesdays In '61-'62

Bob Hennick, Chicago Chapter, Program Chairman, for the coming year has announced that regular chapter meetings will be held on Tuesdays with the following dates established; September 19th, October 10th, November 14th, December 12th, January 9th, February 13th, March 13th, April 10th, May 15th and June 12th. These dates will be changed only to bring a program of unusual architectural significance or to avoid conflict with other meetings of substantial concern to the profession. Meetings will generally open with a cocktail hour at 5:30 pm. Dinner will be scheduled for 6:30 and the program immediately following.

Details concerning September's meeting will reach all Chapter members by mail soon.

Construction Problems and Modernization To Comprise Program At Building Exposition Congress

Nineteen sessions, covering virtually every major problem of new construction and modernization will comprise the program at the Building Exposition & Congress, scheduled for New York Coliseum, September 25-28. Exhibits will cover two floors.

The Congress will open with a discussion of "Top Management's View of Industrial Buildings." Aspects of plant location study will be considered in three parts, "Considerations in Setting Up and Coordinating a Plant Location Search," "Hiring New Employees and Moving Present Ones" and "The Public Relations Essentials in Selection of a Location."

The second day's topics will include design and construction approaches in other countries; heating, ventilation and cooling in modern plants; the effect of building design on employee morale and productivity; the selection of the architect and builder for foreign work and other phases of building in a foreign country.

The third day sessions will be devoted to "Developing More Effective Procedures for Construction of Industrial Buildings," which will consist of these subjects: "Estimating and designing suitable facilities and reducing construction delays," "Effective Procedures for the Owner Who Builds Infrequently" also will be considered.

Producers' Council Holds 40th Convention

The annual business meeting and election of officers will be held in connection with the 40th Convention of the Producers' Council on September 20 and 21 at the Pittsburgh Hilton Hotel in Pittsburgh, Pa. The Chapter Presidents Conference will be held September 20-21-22.

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Hans Friedman, AIA, Editor, Inland Architect, Organizes New Firm

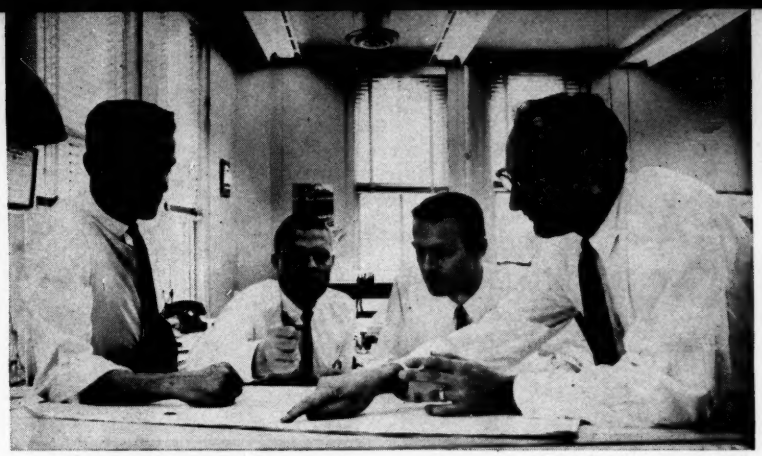
Hans A Friedman, AIA, has announced the formation of a new architectural firm, Friedman, Omarzu, Zion & Lundgoot, which has established offices at 150 North Wacker Drive in Chicago. Mr. Friedman has been Chief Architect and head of the Architectural Department of De Leuw Cather & Company, Consulting Engineers, for nine years. He is currently serving as Editor of INLAND ARCHITECT.

Mr. Friedman was responsible for directing the staff work on the planning, design and construction supervision of all architectural assignments for De Leuw Cather & Company. He has had extensive experience in the field of parking facilities, transportation facilities, buildings of all types and urban redevelopment projects.

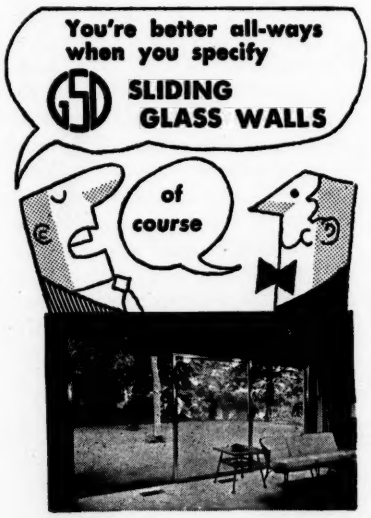
Partners, Joseph H. Omarzu and Richard G. Lundgoot, AIA, bring experience in industrial and commercial buildings, and institutional work. Mr. Lundgoot is a member of the Editorial Staff of INLAND ARCHITECT.

William Zion served the Chicago Park District as architect and designer and has wide experience in institutional work, transportation facilities and in multi-unit residential buildings.

According to Mr. Friedman, De Leuw Cather & Company will collaborate on the engineering phases of the new architectural firm.



Members of newly formed architectural firm by Hans Friedman, AIA, left to right, William Zion, Joe Omarzu, Richard Lundgoot, and Hans Friedman. The new firm will be called Friedman, Omarzu, Lundgoot, and Zion and will have offices at 150 North Wacker Drive in Chicago. All partners were previously affiliated with De Leuw Cather & Company, Consulting Engineers.



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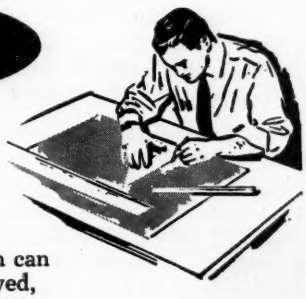

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EDITORIAL

Questions Ahead

Having stated our editorial position broadly in the July issue of INLAND ARCHITECT and having solicited your responses to our questionnaire, we now proceed to implement our policies, even in advance of a complete analysis of our readers' stated suggestions, preferences or prejudices.

Your answers to the questionnaire will serve as a guide to us in the future. We plan to publish a summary of responses to indicate, if nothing else, that this publication is being read and can, therefore, be a useful tool of communication and education.

However, the selection of editorial content is the prerogative of the editorial staff, a responsibility entrusted to it by the Board of Directors of the Chicago Chapter AIA. We intend to make use of this editorial freedom expressing ourselves quite candidly on a wide range of subjects and publishing opposing and perhaps uncomfortable views and ideas. We will encourage "Letters to the Editor" and these will be published. But we will be selective in the publication of editorial matter. While we will be welcoming contributions from our readers, we will feel under no compulsion to publish material merely because it has been submitted.

The quality of the editorial content of this magazine and its proper presentation is our concern. We are, as we have stated before, full time architects and part time editors. We cannot expect to be all things to all readers. Some of you will continue to find fault with our efforts. Constructive criticism will always be welcome.

This issue of INLAND ARCHITECT features an article on "ECEP," a new approach for the planning and programming of a university campus. Prepared by the Design Department of Southern Illinois University, this material has not previously been published. We believe that the methods used here will be of interest to you, our readers. An office profile of the Chicago architectural firm of Hirschfeld, Pawlan and Reinheimer, as well as the first installment on an article on concrete shells complete this issue.

The September issue will feature a thorough case study of an Urban Renewal Project, specifically the LaSalle-Clark project of the Chicago Land Clearance Commission. INLAND ARCHITECT October 1961 will be devoted to a review of prestressed concrete, its uses, its limitations. The November issue will give the Design Department of Southern Illinois University an opportunity to present itself to our readers. Stimulating and constructive work of vital interest to our profession is being done at SIU, recent newspaper stories notwithstanding.

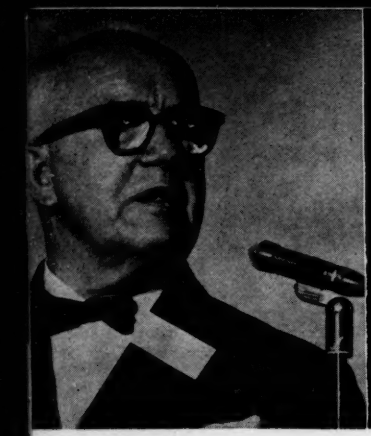
Someday, however, we will probably question the cult of seminars, of luncheon talks, of conferences and conventions. We wonder about the pious talks, the flood of news releases, reports and other similar activities, which are in themselves substitutes for action. The constant outpouring of so-called new materials and methods, which in fact are new only in their rate of obsolescence, instead of the refinement and perfection of truly significant components of the building industry, arouses our interest and suspicion. —H.F.

ENVIRONMENTAL PLANNING EDWARDSVILLE CAMPUS:

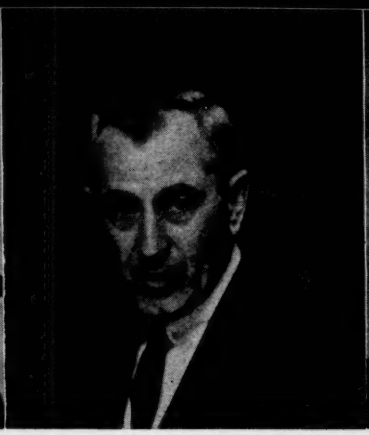
Southern Illinois University takes a new look at campus planning

by Pete Brown

Photographs by Ben Gellman

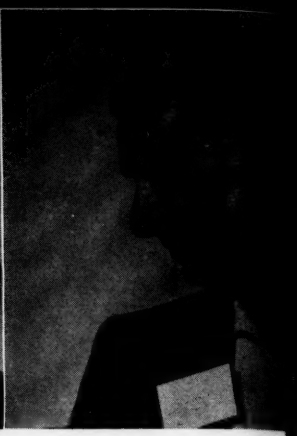


R. Buckminster Fuller *". . . A new pattern emerging calls for absolute flexibility"*



Delyte W. Morris *". . . a university must assert the power of visual dignity"*

Arnold Maremont *". . . visual experience must be more than a backdrop to the academic"*



Paolo Soleri *". . . the anonym or invisible environment is e tiness, impiety."*

Problem: *Creation of a major university campus "from the sod up."*
Planning factors: *18,000 students, perhaps 14,000 of them commuters; location in Illinois' second largest population complex, no more than 18 miles from five cities and across the river from St. Louis.*
Resources: *Proposed 2,400 acre site, $25,000,000, for first-stage construction, and Architect Gyo Obata as chief planner.*
This is the factual base for a public dialogue without precedent in modern institutional planning—a June assembly of critics, scholars, artists and educators to discuss how a new university can by its physical presence "assert the power of visual dignity to its students and the world."

■ The quote is from an address by Southern Illinois University President Delyte W. Morris, welcoming the dialoguists to "Environmental Planning, Edwardsville Campus" (EPEC), a series of seminars the week-end of June 3-4 in East St. Louis. Site of the discussions was a 100-foot diameter air dome erected on a downtown parking lot, approximately 15 miles from the pastoral acres near Edwardsville where SIU late this year will begin turning earth for its new Southwestern campus.

Although SIU has been planning the new Edwardsville campus for the past few years selecting the award-winning architectural firm of Hellmuth, Obata and Kassabaum this past year, the notion of adding a "new dimension" to the master plan came about through the interest of Arnold Maremont, Chicago industrialist and art patron recently named to Southern's Board of Trustees. Maremont envisioned the campus as a possible showcase for the visual arts, where sculpture, paintings and plastic art forms could be integrated with the buildings and the site.

A supporting gift from Maremont's Kate Maremont Foundation was quickly matched by another from the Educational Facilities Branch of the Ford Foundation to sponsor EPEC a meeting of minds and specialized talents to discuss "problems inherent in the physical development of a new university campus."

EPEC's seminar lineup included seven "live" panelists and six others who were interviewed on sound film. They addressed themselves to general questions dealing with the place of ornamentation on buildings, design concepts for a university campus such as the one proposed at Edwardsville, and the problem of the automobile and the new landscape it has created.

At the dome symposium in person were Philadelphia's City Planner, Edmund Bacon; Sociologist Howard Becker; University of California planner and presidential assistant Earl Bolton; Designer - Inventor - Philosopher R. Buckminster Fuller; critic and historian Sybil Moholy - Nagy; landscape architect Hideo Sasaki and sculptor-architect Paolo Soleri. On film were Joseph Albers of Yale; Reyner Banham of England's "Architectural Review"; Dean John Burchard of the Massachusetts Institute of Technology; Alvin Eurich, Ford Foundation vice president; writer and critic Eric Larrabee, and Andrew Ritchie, director of the Yale University Art Gallery.

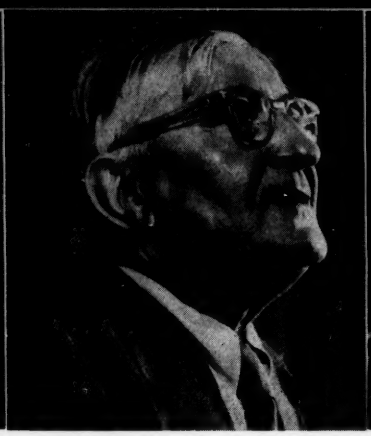
Another highlight of the two-day series was a slide-and-sound production titled "Manscape," which utilized a battery of eight slide projectors and a narrative track to depict what man has done with his environment, good and bad. Beginning with the birth of the planet, "Manscape" painted the interior walls of the dome with a huge, multiple-image panorama ranging from the Taj Mahal to a modern urban junkyard; from the spatial sublimity of the Piazza San Marcos to the desecrations of 20th century slums and suburban anonymity.

The discussions themselves opened in the dome after guests had spent a morning touring the Edwardsville site with University architects, Obata and HOK representatives.

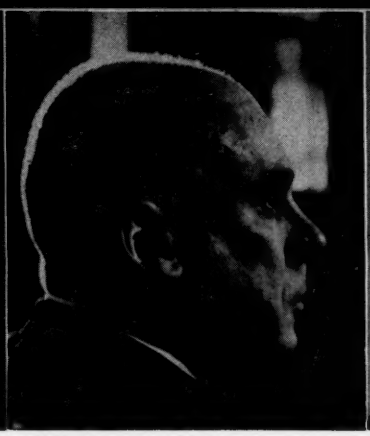
Unanimously delighted with the site and opportunities for development it presented, the panelists then proceeded to attack what was obviously the most attractive discussion topic of the seminar: the prospect of all those cars and commuters.

Larrabee, one of the filmed participants, sounded the note that was to be echoed in one form or another by most of the EPEC panel. "You're about to take money for education—money

Banham *". . . a commut-*
niversity calls for radical
ons"



Josef Albers *". . . (murals on buildings); 90 percent of it is junk"*

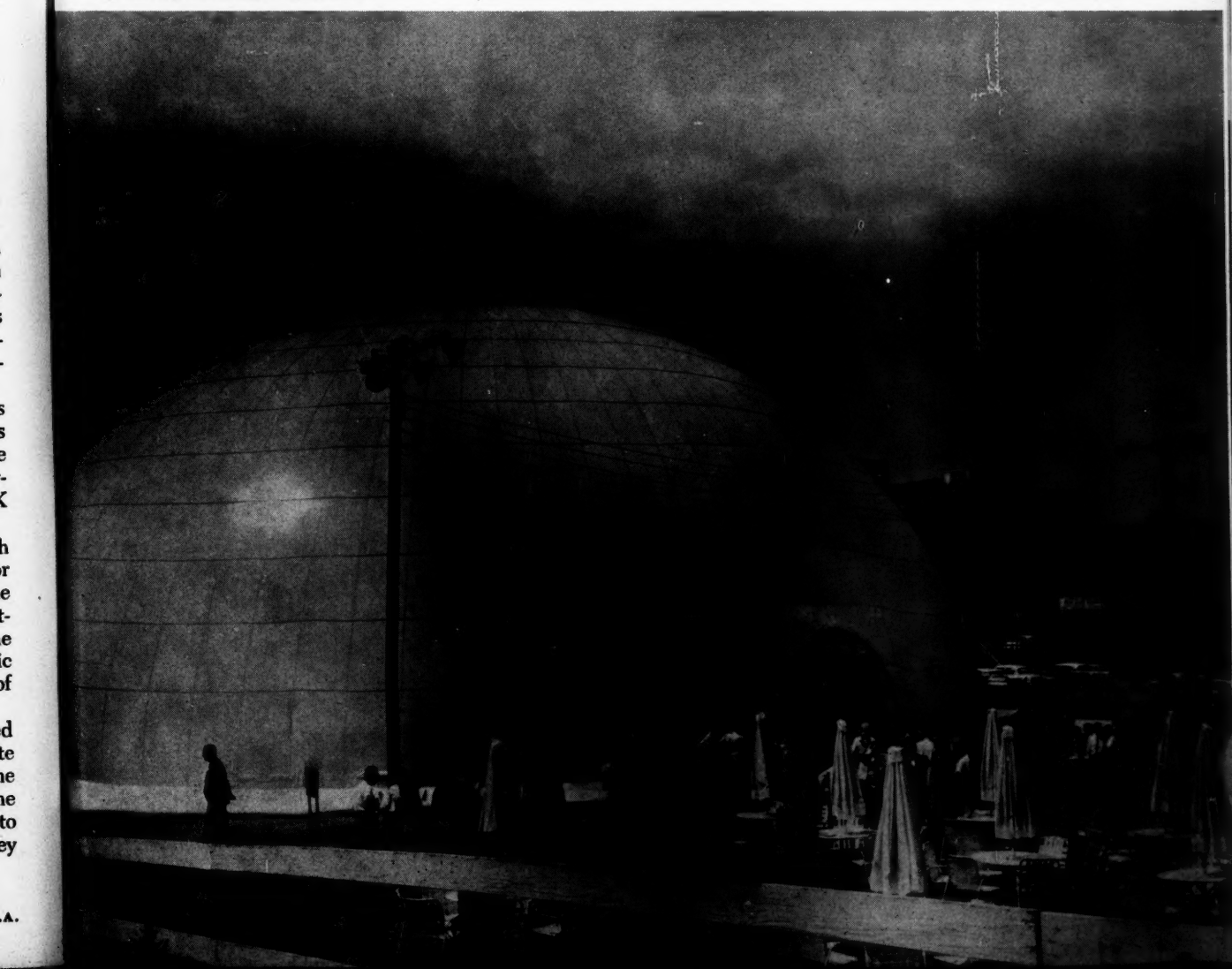


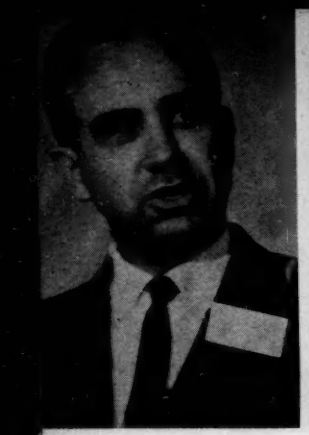
Eric Larrabee *". . . Don't attach yourself to such a doubtful institution as the automobile"*

Sybil Moholy-Nagy *". . . 90 percent of college is making personalities out of persons"*

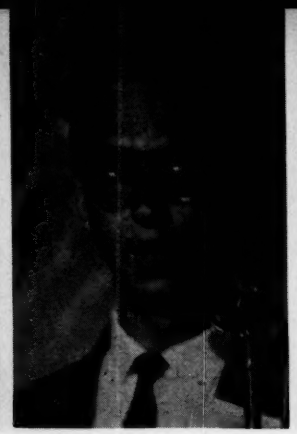
that is hard to come by—and spend it on black-topped dormitories for all these cars," said the noted critic of American culture, and an editor of *American Heritage* magazine. "I think the university should hesitate before building itself into this box." Charging that the automobile is "taxing and tearing our cities to death," Larrabee said "I see no reason why a university should service this machine or attach itself to an institution of such doubtful character." He went on

Site of Southern Illinois University's EPEC symposia and exhibition was this 100-foot diameter air dome erected on a downtown East St. Louis parking lot. Following seminars, the dome housed two-day public showings of "Manscape," slide-and-sound production assembled by SIU design department.

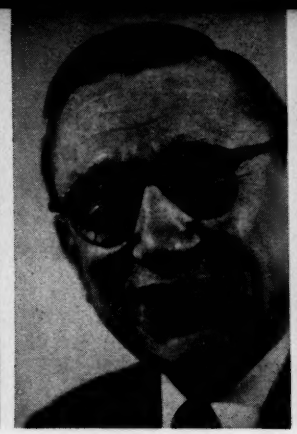




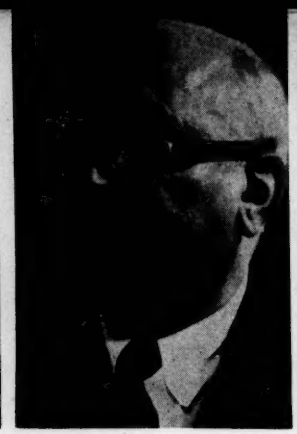
Earl Bolton *". . . the car will not simply go away; you have to consider the commuter"*



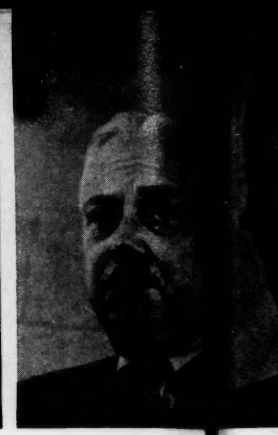
Howard S. Becker *". . . students must have places to meet, and talk, and know one another"*



Alvin Eurich *". . . SIU is doing a very creative job of planning"*



Andrew Ritchie *". . . don't deny style with an anonymous box of glass and steel"*



John Burchard *". . . tral space that peo may change is a terrible to be*

to plead for a university that would "be a universe of its own, on its own terms."

Bacon, probably the most respected and well-known urban designer in the U.S., provided the most anti-car sentiments of the seminar. Calling the site "extraordinarily beautiful," he said ringing it with parking lots would be a tragedy, asked for a "clean demarcation" between structures and natural settings. "The answer on this site is to group the buildings closely together with urban connections and to completely segregate parking to the perimeter. The students would have a marvelous 15 minute walk from this one gigantic lot through the site, thus experiencing a transition from the mundane world to the world of learning."

Bacon's remarks were in firm rebuttal to the ideas of California's Bolton, who cited elephant trains and moving sidewalks as possible solutions to the problem of the "monster automobile" and their commuting thousands. Bolton had suggested four strategies for the Edwardsville plan: permanent on-campus dwellings for faculty instead of students (a complete about-face in the usual relationship); extending planning beyond campus borders by making fringe-area residents responsible for extending the planned environment in their own specially zoned neighborhoods; building transportation systems to campus from parking lots, and "sticking to the master plan." Bolton said every university more than a decade old has adopted a long-range master plan, then has compromised it by expediency changes along the way. "None of them have had the courage to stick with it," said Bolton, "but any school with the vision to plan something like EPEC deserves praise for its intentions to do just that."

"Keep your moving sidewalks," Bacon said to Bolton, and suggested that savings in utilities through close-packing of the campus buildings could go toward "buying honest-to-goodness works of art." Bacon said that "art is no good if it is on a floating, semi-landscape; you can't place art in an environment where there is confusion about the relations between man and the land." Examples of this kind of misdirection, he said, are Brasilia ("too much space between buildings") and the UNESCO building in Paris.

Soleri, Italian born innovator whose own "earth house" near Scottsdale, Ariz., is a favorite example of visionary shelter design, said "the automobile has destroyed the historical landscape. I would say that the chance for a young individual's maturing is in inverse proportion to how many horse-powers he thinks he needs and will use. For the sake of education, character vigor . . . economy . . . beauty . . . I would forbid the use of cars by students within the inner boundary of the university." Suggesting the use of bicycle lanes and paths from parking areas, Soleri said "the bicycle is an exquisite bio-technic tool . . . worthy of being reintroduced into the American life."

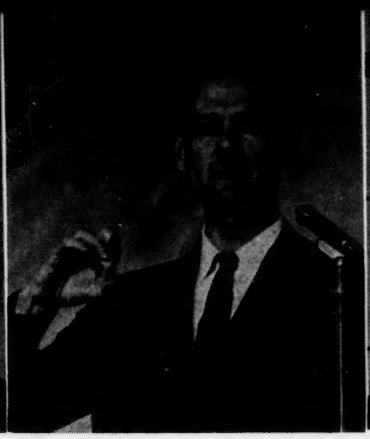
Not all of the Seminar opinion centered on the ubiquitous automobile. Some of the strongest discussion was generated by a question dealing with "anonymous" or "flexible" architecture of the kind advanced by Walter Gropius and the Bauhaus.

Said Burchard, dean of humanities at MIT and a noted authority on housing design: "You want personality, not anonymity. A purely neutral space that people will change from time to time is a terrible idea, a deadly idea. I'm all for commitment. A completely flexible scheme has no character. The things we remember best are the very positive things, with great character."

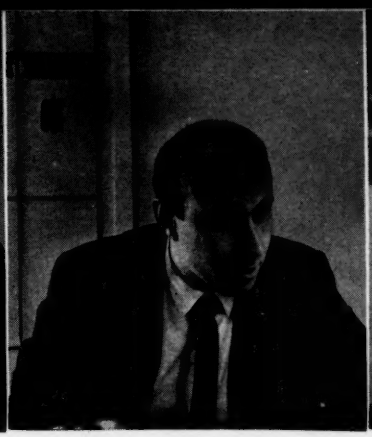
Ritchie echoed Burchard's sentiments: "It is a disastrous compromise to deny style by putting up an anonymous box of glass and steel," he said. Concerning the place of ornamentation on buildings, Ritchie said all forms of it—paintings, outside murals or whatever—should be considered with the architecture, and not added as afterthoughts.

Fuller, geodesic dome inventor and pioneer designer who is now a research professor at SIU,

Sasaki *". . . Even parking may be treated as visible to be revealed"*



Edmund Bacon *". . . you can't place art in an environment where there is confusion about relations between man and the land"*



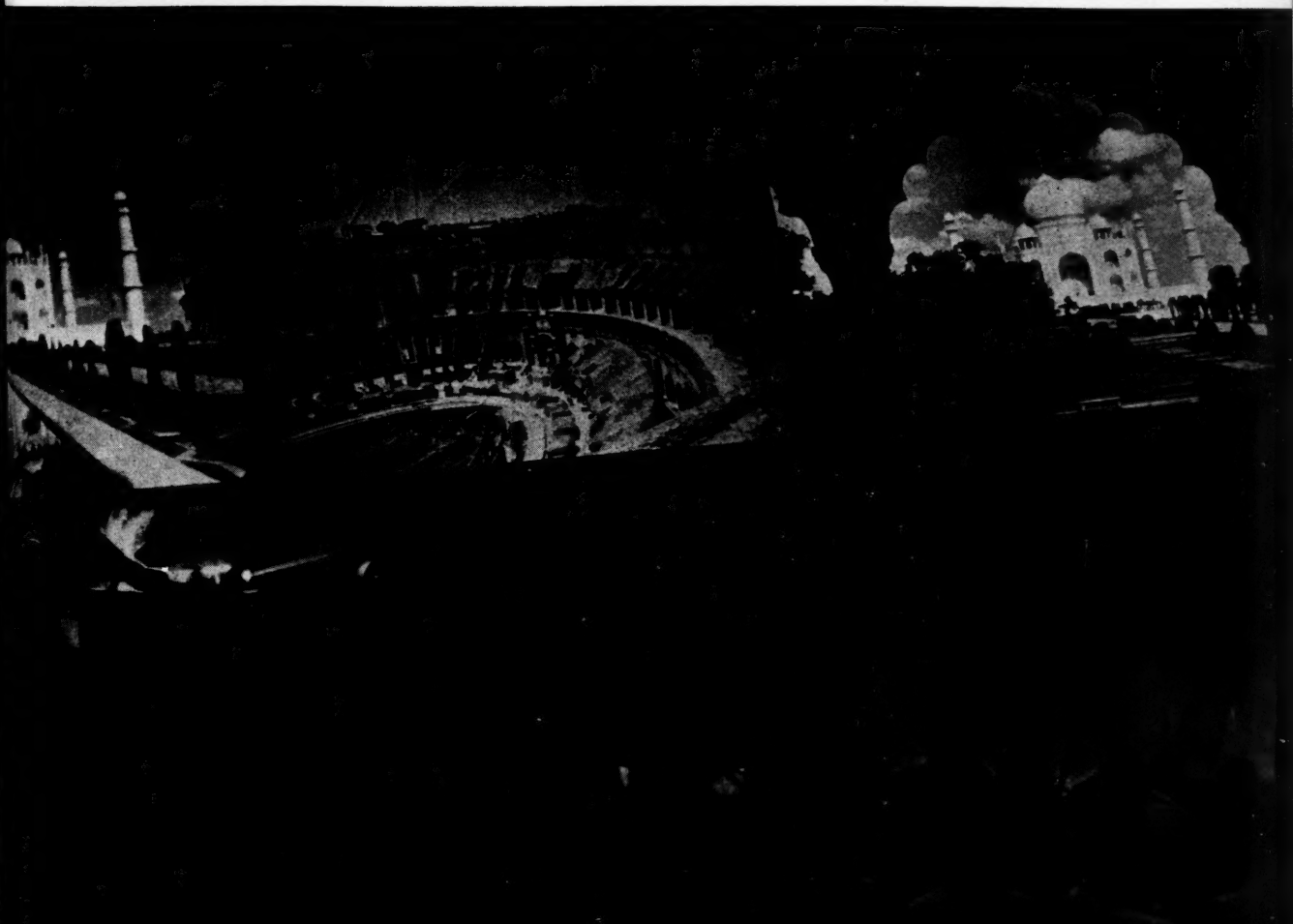
Harold Cohen *". . . a symposium can dissect and expose the major problems"*

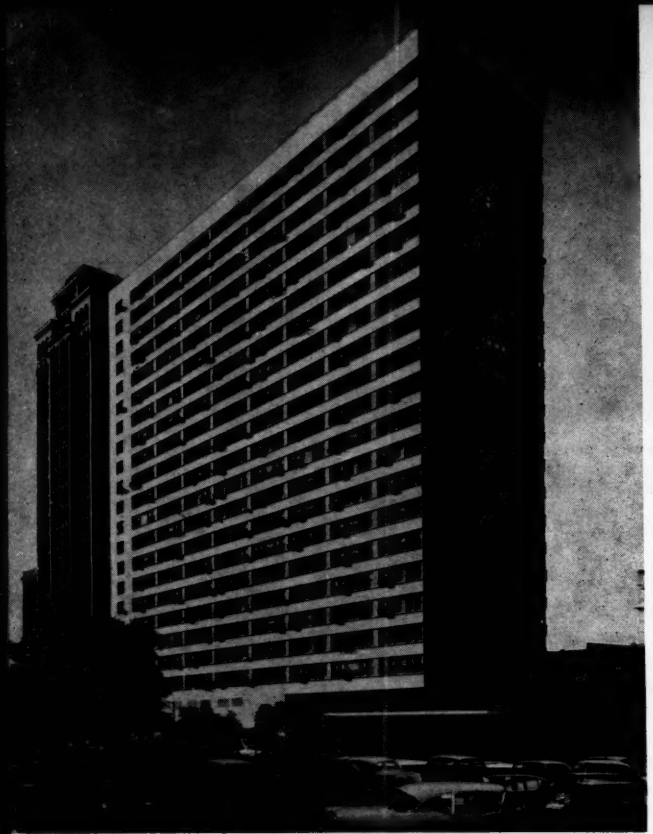
Gyo Obata *". . . the site's natural beauty is integral to the plan"*

made a strong appeal for free-span enclosures so large that the sheer expansiveness of interiors would assure privacy. Bacon's idea—a central cluster of buildings on the huge site—struck him as "being a nice tight little package of hard little buildings," but failing to answer the prospect of changing patterns in years ahead. He cited his own planned Tokyo baseball dome as an example of "dynamic building" in a time when increased mobility means less need for dwelling permanence. He expressed apprehension that a conventional brick-on-brick campus would be obsolete by the time that it is built because of changes in man's entire "environmental patterning."

(Please Turn to Page 20)

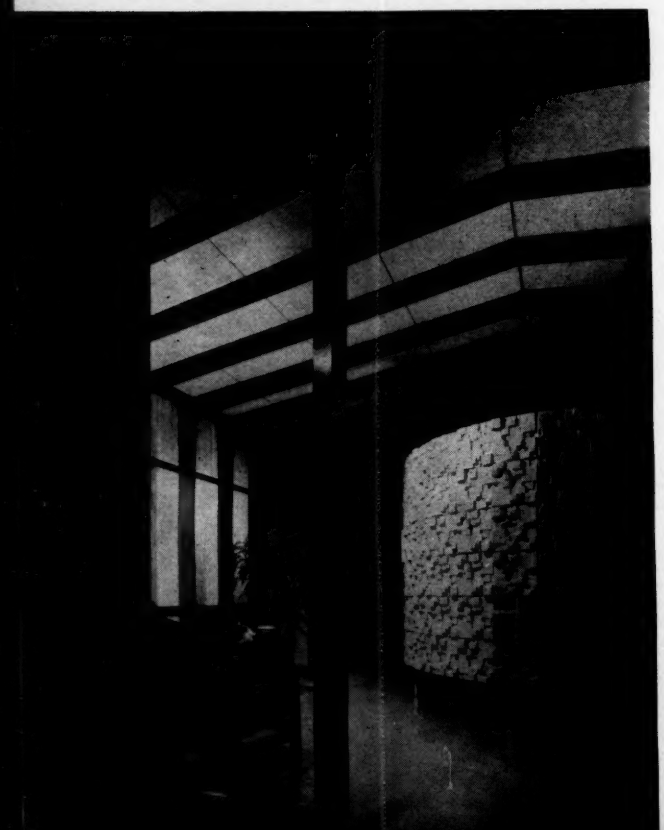
Crowd of some 300 watches "Manscape" during opening of EPEC, June 2 in East St. Louis. Eight slide projectors timed with tape recording narration cast huge images on inside walls of the dome. SIU design department production chronicled man's attempts to control and shape his environment.





850 DeWitt Apartment Building

Curved precast concrete screen in reception room conceals plan table for contractors. Translucent wall at right softens sunlight from south windows in general office.



OFFICE

The operational philosophy of Hirshfeld, Pawlan & Reinheimer develops from several basic concepts, one of which is consciousness of their opportunities as architects to encourage the search for new methods.

This conviction that architectural creativity must itself constantly research, analyze and keep step, in a living environment of change, as well as provide the leadership that fosters incentives for all segments of the building industry to explore beyond current practice, has been a prime force in the steady growth of the firm, the partners believe.

The firm pioneered the use of ceiling radiant panel heating in their design of their luxury, high-rise apartment buildings spanning the last ten years. Commonwealth Edison Company has sought their cooperation in developing an economical system of electrically heating ceiling radiant heat panels.

The Partners:

Leo S. Hirschfield – AIA, Illinois Society of Architects; Registered Architect in Illinois and Indiana; BS in Architecture, Illinois Institute of Technology, 1915. After service with the Bureau of Yards and Docks during World War I, and a short period working for other architects, Mr. Hirschfeld entered the practice of Architecture in 1919 and has practiced continuously since then. In his years as a practicing architect, his work includes multi-story apartments, hotel, office, garage, industrial, commercial, public housing, bank and institutional buildings, swimming pools, etc.

Harold S. Pawlan – AIA, Illinois Society of Architects; Registered Architect in Illinois, Wisconsin, Indiana, Iowa and Texas; holds Certificate of NCARB; BS in Architecture, University of Illinois, 1938. Special merit scholarship in Civil Engineering, Purdue University, 1933-36. Winner of

TIQOFILE—Hirshfeld, Pawlan & Reinheimer

Encouraging the search for new approaches and solutions to problems at all levels of architecture, the firm is now considering the possibility of providing an experimental apartment in a current high-rise, apartment building project, which will be available to manufacturers and suppliers to tenant test laboratory developments.

Hirschfeld, Pawlan & Reinheimer, which through Leo S. Hirschfeld, AIA, has been in continuous operation for 42 years, has a diversified practice including multi-story apartment buildings; commercial buildings, including shopping centers; industrial, park, auto laundry, community center, youth camp and hospital buildings. Hirschfeld, Pawlan & Reinheimer are members of the Chicago Association of Commerce and Industry, and the Chicago Building Congress.

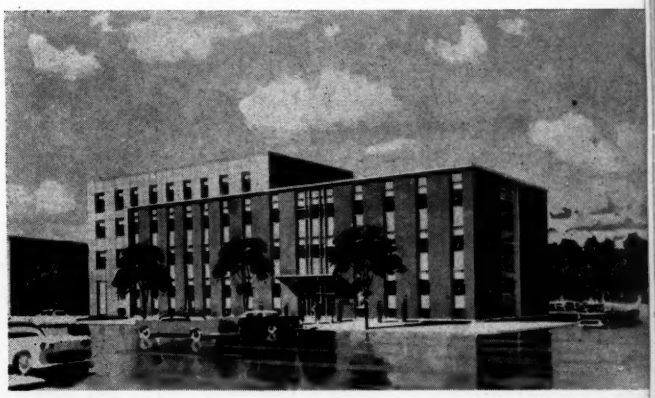
The firm has been working for many months on the planning of the proposed multi-million dollar high rise apartment project to be constructed on air rights over the Illinois Central tracks at Randolph Street, east of Lake Shore Drive, which would eventually house some 25,000 persons. The development is sponsored by Jerrold Wexler, who heads a group now constructing a $6 million, 26-story luxury apartment building at 215 East Chicago Avenue, to be known as the Carriage House, with Hirschfeld, Pawlan & Reinheimer as architects. Nearing completion is the 21-story apartment building at 860 DeWitt being built for Raymond Sher, who is associated with John Mack, largest developers of the near north side area. The firm is also architect for the 35-story, 1440 Lake Shore Drive Apartment Building.

In the construction of the 215 East Chicago Avenue, Carriage House building, Hirschfeld, Pawlan & Reinheimer recommended that a four story garage on the site not be demolished, but incorporated into the design of the building. Incorporating the existing building into the new structure not only resulted in a considerable saving in construction costs, but also permitted the profitable garage business of one of the sponsors to remain in operation during much of the building time.

Many of the luxury high-rise apartments on Chicago's Gold Coast and north side were designed by the firm. Among them are: 253 East Delaware, 190 East Chestnut, 222 East Chestnut, 1335 Astor Apartments and 850 DeWitt.

In recent years, the firm has been given several awards for its work in this field. In 1958 the Chicago Chapter of the AIA and the Chicago Association of Commerce and Industry awarded a "Citation of Merit" for the design of the 850 DeWitt Apartments.

Beaux Arts Institute of Design—Illuminating Engineering Society First Prize, First Medal, 1938. Studied and traveled in England, France and Italy, 1938. Three years experience designing hospital and other institutional buildings for State Architect's Office, State of Illinois.

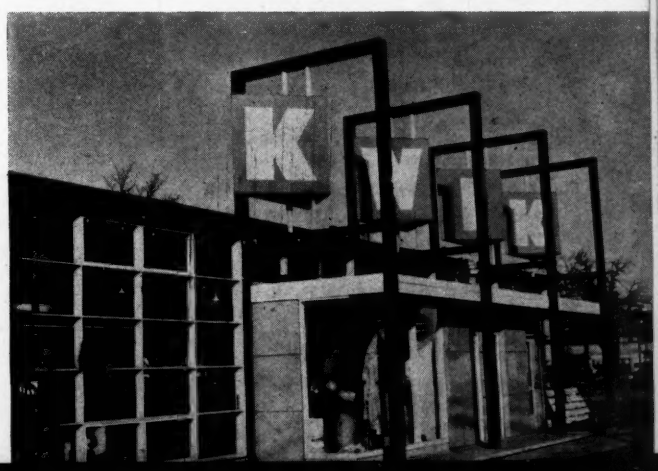


Louise Burg Hospital, Chicago — just completed.

Martin L. Reinheimer—AIA, Registered in Illinois, 1951, BS in Architecture, Illinois Institute of Technology, 1949. Studied at Ecole Des Arts Decoratives, Strasbourg, France.

Mr. Reinheimer was made a partner in the firm this year. He participates in the design and all other phases of the firm's activities in connection with multi-story apartment buildings, commercial and industrial buildings, hospital and public buildings.

Mr. Reinheimer has been associated with the firm in the capacity of architect since 1954. Previously, he was with several large Chicago architectural firms.



Typical car wash

Where Will Shell Roofs Go From Here?

by Theodore R. Newman, ASCE, NSPE, ISPE

A growing enthusiasm for the versatility of shell roofs has resulted in many new buildings during the past several years. However, there are some important limitations to shell roofs. The history and the development of the technique of shells, the reason their use has lagged in America until now, and the need for understanding more about them are discussed in this article.

■ Much is being written these days about the shell roof, a relatively new concept of roof design. If one were to sum up all the "press notices" the shell has received into an answer to the question, *Where will it go from here?* it might come out something like this . . .

Shells have already gone in all possible directions: North, South, East, West, up and down, and all variations and gradations thereof, so where else *can* it go?

The record compiled by this unique roof construction is too impressive to be lightly dismissed. The shell roof will find new directions and give new twists to old ones, but this is not all of the answer.

Shells have captured top honors in high and broad jumps on every type of athletic and recreational structure, as well as on airplane hangars, industrial plants —any building with a 1-, 2-, 3-, or 4-way stretch roof problem, and that includes, of course, *all* buildings.

But these are only a few of the shell's claims to fame.

It has been an easy walk-away with dome dignity awards atop churches, libraries, galleries, public buildings, and others, many of which, like atomic reactor enclosures, are not so much concerned with dignity as they are with the numerous utilitarian properties of the dome.

Shells have swept to first place in structural beauty contests and they've stashed away more than a few architectural and engineering awards.

This story of outstanding achievement can be pieced together from the scrapbook of the ugly duckling that started life as an unpretentious factory roof less than forty years ago. Proof that shell performances often exceed even the most enthusiastic reports about them is to be seen mostly in Europe and South America but also, in the rapidly increasing use of them in the USA.

The shell is a star in any role: As a rough and tough factory worker, athletic hero or protector of the family, but its most spectacular performances have either a "Peter Pan" touch or a suggestion of the ballet about them.

Shells swoop and dip, rise and plunge, ripple and wave, point, flutter and spin, in startling geometric cadences, to the delight of all who behold.

One finds little, however, about the occasions when the new star has broken into awkward, offbeat dissonance, or stumbled and fallen.

Careful investigation of failures reveals no fault in the shell principle, only an occasional lack of understanding of its limitations and/or application techniques.

About The Author

Theodore R. Newman, B.S.C.E., Illinois Institute of Technology, is a registered structural and professional engineer; a member of American Society of Civil Engineers and National and Illinois Societies of Professional Engineers. He is a practicing structural engineer in the City of Chicago and his professional experience covers the field of commercial, industrial, and institutional buildings and special structures.

His work in shells ranges from the monocoque metal and plastic structures of aircraft to blast-resistant dome and barrel shells of protective bomb shelters. His article is based upon an intensive study of shell roof techniques both in California and Chicago areas.

This indicates a need for knowing more about shell applications.

Perhaps at least some of this knowledge can be supplied by reviewing the history and development of the shell, including analysis of its failures as well as its successes.

Perhaps such a review will also lead to the correct answer to the question: *Where will shell roofs go from here?*

Carl Zeiss, noted manufacturer of optical equipment, is generally credited with having designed and built in Germany the first concrete shell roof of what might be called the modern era of the technique. This was in 1924 and the shape of the Zeiss shells were cylindrical or barrel.

The barrel technique was promoted and used extensively throughout Europe and South America with the Germans preferring the long barrel and the French the short. The French led in the development of other shell shapes, the conoid and umbrella forms and the intriguing hyperbolic paraboloid.

Zeiss thus opened a whole new world of architectural and engineering design possibilities which today run the gamut of almost every line and curve. He did something more. He pointed the way to the glamorization of the unsung workhorse of construction, concrete.

America saw its first concrete shell roof in 1933 at the Chicago Century of Progress Exposition. It was regarded with mixed reaction, a preponderance of which must have been negative because another ten years passed before it began to come into its own. Again, Chicago was the scene of great shell triumph.

In the war years, priorities on various metals put steel in the platinum class.

The famed Albert Kahn architectural and engineering organization of Detroit was given the task of designing and building the nation's largest war plant, the

A portion of the original Dodge-Chicago plant designed by Albert Kahn, Detroit, and built in 1942 by George A. Fuller Co. Eighty-two acres were covered with short circular shells varying in thickness from 2½" to 3½", in rise up to 5", in chord width from 15' to 50' and in span from 10' to 30'.

Dodge-Chicago group, on a 500-acre site, squaring north and east from the corner of 79th street and Cicero avenue.

The project involved 20 buildings, the largest of which covered an area equivalent to about 50 city blocks. Breaking ground for these structures on June 4, 1942 was a comparatively easy matter. Getting them moving skyward and under roof was something else again.

Original plans called for 30,000 tons of structural steel. Although the plans were okayed by the Defense Plant Corp., the War Production Board "nixed" the allocation of so much of the precious metal even for such an important plant as Dodge-Chicago.

Kahn staffers forgot there were such things as beds until after they'd evolved a method of concrete shell roof construction for the relatively long spans which used only a fraction of the steel (2.56 pounds per sq. ft. of floor space) called for in the original plans.

The new design represented a saving of some 18,000 tons of structural steel and about 9,000 tons of reinforcing steel.

American architects and engineers got a demonstration of the new roofing technique that started them on the merry chase toward today's thousand-and-one uses of the concrete shell.

The major design problem confronting Kahn engineers at Dodge-Chicago was the largest building in the project. Measuring 2,340 by 1,520 ft., the original plans called for bays 30 by 76 ft. In the revised plans, these were cut to 30 by 38 ft. and were roofed over by thin arched slabs of concrete reinforced by one layer of 4 by 4 in. No. 6 woven wire.

The arched slabs are three inches thick at center, have a rise of four ft. and a span of 38 ft. Each 30-ft. section of arch roof is strengthened by two thin concrete ribs, 5¼ in. wide, and spaced 15 ft. apart, midpoint of the bay and at column lines.

Girders into which slabs are framed are 18 in. wide and 27 in. deep. Columns supporting these girders are 18 in. square, have a minimum height of 21 ft., 10 in. and are haunched for the upper 21 in. for a distance of five feet on each side along the girder lines.

The arch roof of each bay is divided into two parts by the center rib, so there are more than 6,200 separate ribs, 15 ft. on centers, in the massive roof of the largest structure. Each rib was designed to carry two 500 lb. capacity overhead cranes per bay in the main building and as high as 5-ton cranes in the heat treating building.

Roof framing was figured for a live load of 30 lbs. and a concrete deal load of 69 lbs. per square foot, plus penthouses for mechanical ventilation and heating equipment.

Provision for the effect of temperature changes on the huge expanse of roof was made by cutting the structure completely by two longitudinal and four transverse joints, using double columns for the longitudinal joints but cantilevering the longitudinal girders for the transverse joints at mid-span of the 30-ft. bays.

The new concrete roof construction proved particularly well adapted to the magnesium and aluminum foundry when Dodge-Chicago went into war plane production because it was entirely free of ledges or surfaces where explosive or inflammable dust deposits could settle.

It may not seem important now, but the concrete shell atop the Dodge-Chicago plant saved enough steel to build nearly 1,000 medium tanks.

It *is* important now, however, that the shell can still effect dramatic savings in construction time.

Under the most exasperating circumstances, the Kahn organization bridged the span from ground-breaking to complete operation of the world's largest war plant in 18 months. It would have been a monumental achievement under any circumstances, but quite impossible without the concrete shell in 1942.

The Dodge-Chicago project has long since stopped producing airplane engines and passed to a wide variety of other pursuits, but its numerous structures will be serviceable for many years

This airplane hangar designed by Architect Aymar Embury with Ammann and Whitney as engineers has a chord span of 257' with six bays and covers an area of 91,000 sq. ft. Corbetta Construction Co. was contractor.

and their roofs will remain a subject of design study as long as the buildings stand.

Kahn made the concrete shell *work*, literally and figuratively, 18 years ago. Chances are, if you'd asked him then, "Where will shell roofs go from here?"—he'd have been able to give you the right answer.

It's more than likely that architect Richard Phillip or engineers Roberts & Schaefer who 'dreamed-up' and built that first American version of the shell roof in 1933 knew the right answer, too.

Their pioneer effort was the Brook Hill Farm Dairy Building. Dimensions were not, of course, as impressive as those at Dodge-Chicago but, at the time, the venture was no less daring. Area was 72 by 36 ft., chord width, 14 ft., thickness, 3 in., and rise, 3 ft. Five barrels of concrete shell jumped the 36 ft. dimension with ease.

It's regrettable that the Brook Hill structure, like other Century of Progress construction startlers, was razed after the big show closed. Were it standing today, it, too, would undoubtedly have something to say about where shells will go from here.

The second concrete shell topped structure in the U.S. was also a dairy building on the farm of A. A. Andersen near Harvard, Illinois.

It may be true that the farmer's interest in creative architecture doesn't extend beyond the form of a blade of grass, a flower or a tree, but his sense of the practical in construction is something else again. The shell-roofed structure at Harvard and other farm buildings which have since followed are proof, if any is called for, that he knows a good, practical thing when he sees it.

First appeals of the shell roof in America were its work-a-day functionalism and its steel economy. Not until very recently did we realize the free-form, free-swinging design possibilities of its plasticity.

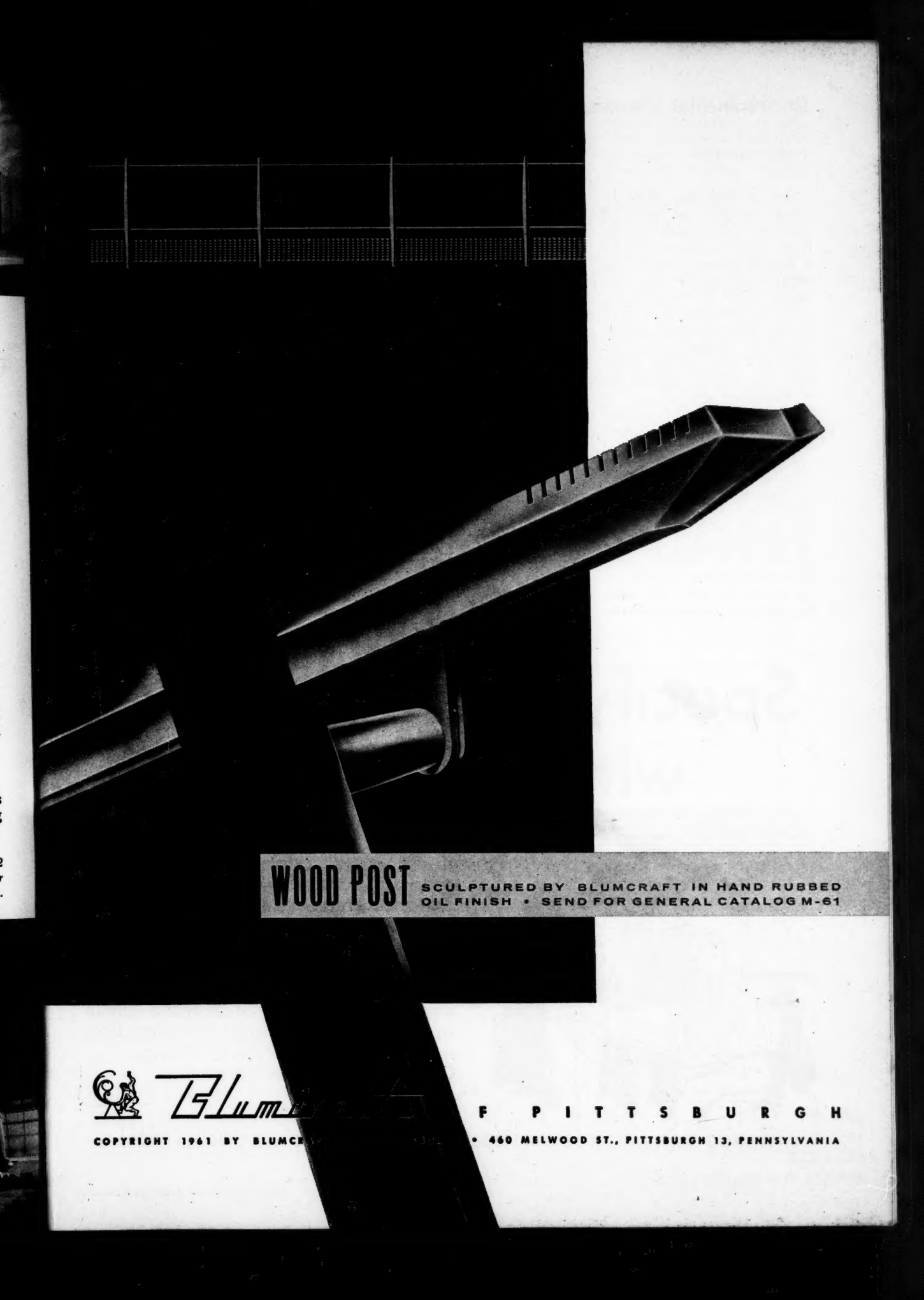
The Chicago area continued to profit from the lesson learned at the Dodge-Chicago project and 1948, Ammann & Whitney engineered an airplane hangar job for American Airlines at Midway Airport. Aymar Embury was the architect. The area covered was 91,000 sq. ft. The chord width of each of two spans was 257 ft. with a rise of 42 ft. The span of each of 6 bays deep was 29 ft. Thickness graduated from 3½ to 6 in.

In 1952, Ammann & Whitney with Aymer Embury, designed a similar short-barrel shell hangar for Trans World Airlines, also at Midway Airport. The area involved was 67,500 sq. ft. The chord width of each of two spans was 270 ft. with a rise of 45 ft. The span of each of 4 bays deep was 31 ft. Thickness again graduated from 3½ in. to 6 in.

(More on where shell roofs will go from here in a succeeding issue.)

The Brook Hill Dairy Farm Building at the 1933 World's Fair in Chicago was the first shell roof built in the city. The interior area covered by five shells was 2512 sq. ft. Photo provided by Anton Tedesko of New York.

This is the interior of the TWA hangar built in 1952 which was also designed by Ammann and Whitney. Four bays cover 67,500 sq. ft. W. E. O'Neil Construction Co. was contractor.



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Environmental Planning — Edwardsville Campus

Cont'd from page 13

Mrs. Moholy-Nagy, Pratt Institute professor and widow of Bauhaus pioneer Laszlo Moholy-Nagy, entered a fervent plea for a campus planned around the social requirements of human beings, called TV education one of the "abominations of the time" and said there should be a clear-cut design distinction between humanities and science buildings. She rapped "togetherness of disciplines and designs" as having led to many "insipid institutions" and said "at least 50 percent of what we at colleges have to offer is making personalities out of persons. Let's consider aspects of social spaces where real 'relating' takes place. She agreed with Bolton that campus residence should be a requirement for faculty members but joined the majority on the automobile issue: "To make this campus' success solely dependent on cars just can't be done.

Sasaki, one of the minority, thought "the automobile and its characteristics may be exploited for their design potential. The auto movements may be used to create a sweeping view, an up and down effect, or a sense of arrival. Even parking areas may be treated as visible form, not necessarily to be hidden but to be revealed, provided that a sense of scale and orderliness is created."

Sasaki agreed with Burchard that the notion of violent change and preoccupation with the future is dangerous in planning. "The future will be something different, we say, so we're always living in a partly built house.

Banham, whose response was filmed during a visiting lectureship at SIU, thought a midwestern environment minus the automobile would only double the isolation from real life that may be characteristic of a university. He suggested a "two-level university; one for cars and parking, another for pedestrians.

Becker, project director of Community Studies, Inc., in Kansas City, opted for "the forgotten man, the student," and said the problem of interpersonal relations on a college campus is one of deep interest to sociologists and should be of prime concern to planners of new institutions.

"Students must have places where they can meet, and talk and know each other," he said. "A population of commuters would be a very primitive student culture and a commuter campus would need places where students could count on seeing each other regularly. The problem will be to break down their aloofness and to develop small

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groups of common interests within the large student body."

Where others were reserved or generally noncommittal about building ornamentation, Yale's Josef Albers was unreservedly negative. "You ask about murals or mosaics on buildings, I say 90 percent of it is junk," said he. "The importance of the eye is not recognized by our universities. Our main contact with the world is not books, but our eyes. If you want beauty in structures, is it to be creation, or more of this damned sin in America—entertainment?"

Summing up in a private symposium that concluded the EPEC weekend, panelists agreed that the campus should be compacted, providing clusters of buildings with spaces for, but no pre-set commitments to sculpture and other forms of plastic and visual art. President Morris told the group that a prime factor in HOK's planning has been uniformity of concept. "We don't want departmentalized architecture as we've had departmentalized education."

Most agreed with Bacon when he said "the solution of this problem is absolutely unprecedented and presents an enormous range of possibilities. The image in our mind, what we think of a 'university,' is important. So is the preservation and adaptation of the site to the plan. But it is important to realize that it's the relationships that count. Harvard Yard is perfect for Harvard, but it would look ridiculous on the Edwardsville site."

Harold Cohen, chairman of SIU's design department who headed the EPEC program, pinpointed its "raison d'etre" when he summarized the meetings: "The value of such symposia is exposure. We have brought together the panelists, each a specialist, to help expose a particular problem: the nature and importance of the visual experience in planning a university. Gyo Obata the architect now can take the tiller, assured that the University is supporting him in the fullest exploration of his own faculty."

University Architect Charles Pulley and his Edwardsville assistant John Randall, former secretary of the AIA Chicago chapter, agreed that the seminars underlined the fact that a university owes to itself a commitment to "the power of visual dignity." As Maremont said: "This visual experience, to be meaningful, must be more than scenery; it must be more than a mere backdrop to the academic. It must have a character—a purpose—a plan. The challenge is to bring to each student during the period he attends the Edwardsville Campus of Southern Illinois University a familiarity with the visual aesthetics of our Western world . . . the student must be given the chance to absorb through his pores, the hopes and aspirations of the architecture of his day." □

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ADDENDUM

New Loose-Leaf Residential Cost Manual Available

The Chicago Chapter of the Society of Residential Appraisers has just published a "Residential Cost Manual." The manual lists 83 miscellaneous items that often vary in new and old houses, so that the appraiser may make necessary adjustments. The 24-page manual resulted from a 10-month research project of the chapter's Construction Costs Committee, and is the first cost study that the chapter has made available to non-members. Every effort will be made to keep the cost figures up to date as local costs change and new types of buildings are added to the chapter's cost system. The manual is contained in a loose-leaf binder to accommodate future additions. Sample copies may be seen at the Chicago Chapter AIA office at 221 North LaSalle.

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Stainless Steel Award Goes To Illinois Architectural Student

The National Institute for Architectural Education has announced that Robert L. Amico has won first prize of $800.00 in the Repetitive Refreshment Stand for the 1964 New York World's Fair Grounds Competition sponsored by the Committee of Stainless Steel Producers, American Iron and Steel Institute.

Robert Amico is an advanced design student at the University of Illinois, as is the second prize winner Richard R. Bergmann, and the third prize winner Anthony C. Frangella.

The program arranged by the NIAE required the design to be: easily identified, unitized, modular, and demountable, exciting and inviting, easily maintained, and have food preparation, dispensing, storage, and trash space within an area of 400 sq. ft.

A jury of architects selected the winning presentations from among 79 entries.

V. O. McClurg Dies

Verne O. McClurg, architect and engineer died recently at the age of 71. Mr. McClurg was a member of the city's oldest architectural firm Mundie, Jensen & McClurg, which was changed in 1953 to Jensen & Halsted. He was a member of the Mayor's building code committee, a former chairman of the air raid shelter committee and a past president of the Western Society of Engineers.

Producers' Council Elects Officers

Robert M. Smith, with the Aluminum Company of America was elected president of The Producers' Council, Inc., Chicago Chapter, at their recent annual meeting. Elected to serve with Mr. Smith as vice president was: E. F. Durang of Otis Elevator Company; vice-president-programs, William P. Jellison of Hydraulic Press Brick Company; treasurer, A. L. Matthews of Libbey-Owens-Ford Glass Company and secretary, S. B. Wilkinson of Congoleum-Nairn, Inc.

Study of Chicago Building Department Being Made

A thorough study of the Chicago Building Department directed toward management and operating improvements is being made by J. L. Jacobs & Company, according to Building Commissioner George L. Ramsey. The survey was requested, according to Ramsey, "in an effort to get expert outside advice and counsel on improving our operations."

The commissioner said the study would take four to six months and would cost between fifteen and twenty thousand dollars.

Land Clearance Commission

The Chicago Land Clearance Commission has accepted Arthur Rubloff's offer of $6,411,000 or $9.17 a sq. ft. to redevelop its North-LaSalle Project. According to Phil A. Doyle, the Commission's executive director, the Commission felt it was for the best public interest to sell all of the residential land in the project to one buyer. This decision was based upon competitive offers from buyers who wished to purchase a part of the project, and also the possibility that the redevelopment would not be as attractive or satisfactory as that which would result if all of the land were sold to one buyer.

The Commission's Project adjacent to Michael Reese Hospital on the Near South Side was closed out recently by the Housing and Home Finance Agency. Sixteen acres of land in the project were sold to Michael Reese Hospital. The remainder of the land was sold for residential construction.

Philip Will, Jr. Named Honorary Fellow Royal AIC

Philip Will, Jr., partner in the architectural firm of Perkins & Will, has been named an honorary fellow of the Royal Architectural Institute of Canada. The honor was conferred at RAIC's 54th annual assembly at the Chateau Frontenac in Quebec City, Quebec.

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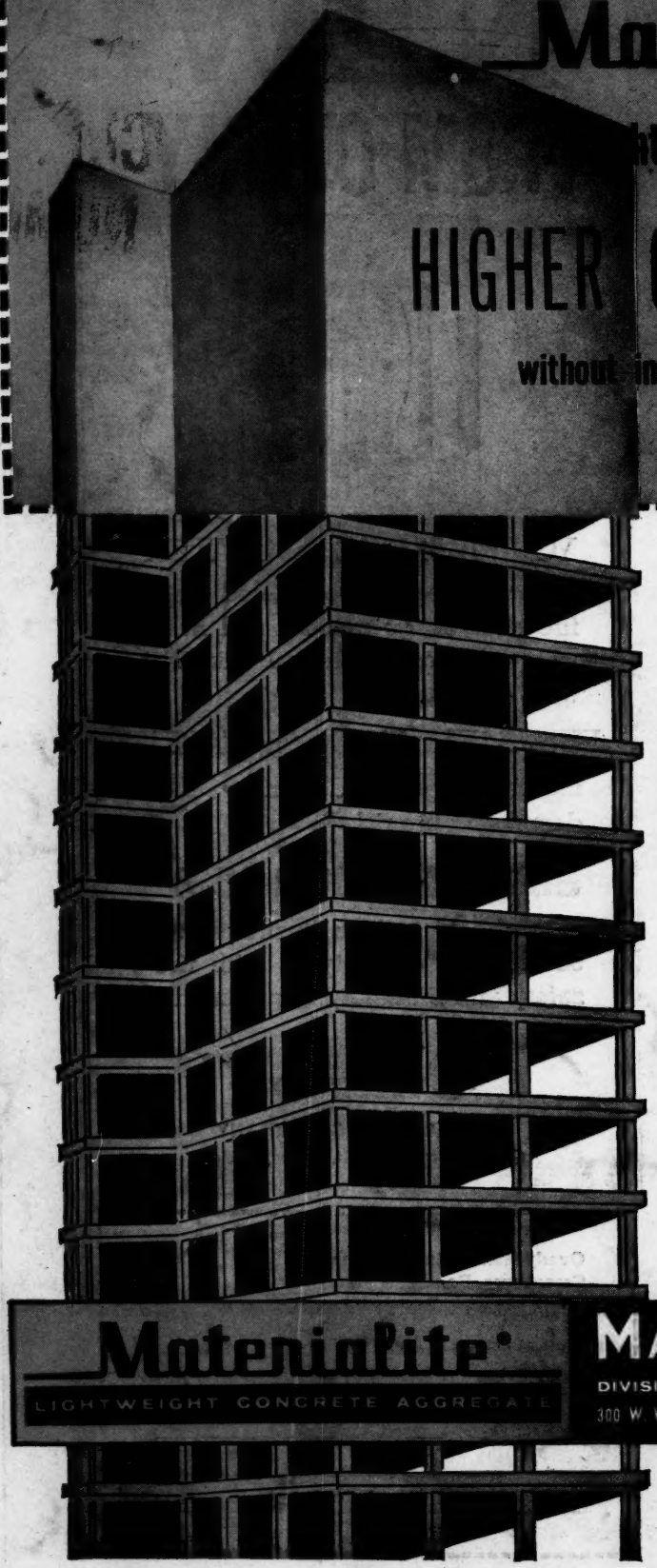

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